

Application No. : 10/044,386
Filed: January 11, 2002
AMENDMENT AND RESPONSE TO OFFICE ACTION

AMENDMENT TO THE DRAWINGS

Attached hereto are eight (8) sheets of replacement drawings (Figs. 1-8d) to replace the hand-drawn drawings filed with the application.

Application No. : 10/044,386
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REMARKS

Claims 1-52 are currently pending in this Application.

Amendments to Independent Claims

In Paragraph 3 of the Office Action, the Examiner rejected all pending independent claims, claims 1, 12, 22, 30 and 40, under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,923,651 to Struhsaker in view of U.S. Patent No. 6,320,851 to Kim et al.

The present invention discloses a system for providing flexible data rate transmissions so as to provide a migration path from one network system to another, such as from a 2G system to a 3G system. The invention facilitates the support of both 2G and 3G systems during a transition period in which 3G services are introduced while 2G services are continued. However, 3G services require greater bandwidth than their 2G predecessors, typically requiring a 5 MHz channel compared to the typical 2G 200 kHz channel. The invention accommodates 3G services by supporting reduced chip rate channels that require a bandwidth that is a fraction of the standard 3G bandwidth. The required bandwidth is decreased by reducing the chip rate. A signal processor receives an incoming data stream and selects an operating downlink chip rate from at least two chip rates, selects a spreading factor, and spreads the incoming data stream into a spread data stream with a channelization code. The selected chip rate can be implemented by varying the spreading factor and by varying the number of slots in a frame. In another aspect of the invention, the invention includes segmenting the data stream into frames having a desired number of slots in accordance with the selected chip rate. As shown in FIGS. 8a-8d this allows a migration path from one system to another, such as from a 2G system operating with 200 kHz channels to a full rate 3G system operating with 5 MHz channels.

Struhsaker merely teaches a method for increasing data throughput by mapping a discrete bit sequence associated with a subscriber to an in-phase component and a quadrature component, the in-phase component and the quadrature component defining modulation of a radio frequency signal in phase and magnitude; and encoding the in-phase component and the quadrature component with a multiple access sequence associated with the subscriber.

Application No. : 10/044,386
Filed: January 11, 2002
AMENDMENT AND RESPONSE TO OFFICE ACTION

The Kim et al. reference cited by the Examiner merely discloses an asymmetric channel allocation system for allocating different bandwidth and chip rates to forward and reverse channel links. Kim et al. teach a 2G system that is designed to maximize the bandwidth for a mobile station through a negotiation process between a base station and a mobile station in which forward and reverse chip rates and bandwidths are determined. Kim et al. does not teach or disclose providing a migration path between one system to another such as between 2G and 3G. Furthermore, Kim et al. does not teach varying the number of slots per frame in accordance with the selected chip rate. Thus, both Struhsaker and Kim et al. merely teach 2G methods of increasing bandwidth, neither disclose nor teach the methods for migrating between a network systems, such as migration from 2G and 3G systems taught in the present invention and neither disclose the present claim limitations that assist in that regard.

Claim 1: The rejection of claim 1 is respectfully traversed, especially in light of the attached amendment. Claim 1 has been amended to clarify the invention by including the limitation that a desired chip rate is selected independently of a receiving device. It is respectfully submitted that none of the references, alone or in combination teach or disclose this limitation. The Examiner acknowledged in Paragraph 3 of the Office Action that Struhsaker does not disclose selecting an operating downlink chip rate from two or more chip rates. The Examiner cited U.S. Patent No. 6,320,851 to Kim et al., however, asserting that Kim "disclose[s] that a base station sets up a call with a mobile station and negotiates forward channel link chip rates." But Kim et al. teaches a method of maximizing the bandwidth of a particular mobile station and therefore relies upon a negotiation process with the mobile station. Therefore the selection is not made independently at the base station. Thus, unlike claim 1 wherein the base station determines a downlink rate independently of a user device, Kim et al. teaches away from the present invention by requiring a negotiating process with a user device.

Claim 1 has been further amended to include the limitation that the first chip rate of said at least two chip rates is equal to a fraction n/p of a second chip rate of said at least two chip rates, wherein said second chip rate comprises a standard chip rate. For example, as shown in the exemplary embodiments the standard rate may be the standard rate a 3G communication and the second chip rate may be the fraction $\frac{1}{2}$ of the 3G standard. This enables the base station to transition from 2G to 3G by gradually changing the fraction n/p as more bandwidth becomes available and the network fully transitions to 3G.

Application No. : 10/044,386
Filed: January 11, 2002
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It is respectfully submitted that none of the cited references teach or disclose that a first chip rate is a fraction of a second standard chip rate. The Examiner acknowledged that neither Struhsaker nor Kim et al. disclose a fraction of a chip rate, but the Examiner cited Kent et al. in paragraph 6 against claim 4 asserting that Kent et al. discloses a CDMA system that supports multiple chip rates of 1.2288 MHz. Applicant respectfully points out that Kent et al. teach, as the Examiner notes, a "chip rate that is a multiple of the basic chip rate, with the multiple being 3, 6, 9, or 12." It is respectfully submitted that these integers multiples are not fractions as required by amended claim 1. There is no teaching or motivation to provide a standard bit rate, and a second bit rate that is a fraction of the standard bit rate as the cited art is directed at maximizing a bandwidth of a device not providing for the use of multiple systems on a network. As previously mentioned, the present invention relates to migrating from one system to a new standard, for example 2G to 3G and therefore a first chip rate may be a fraction of a standard chip rate for a new system, such as 3G. As migration to the new system progresses the fraction may be adjusted. Accordingly, amended claim 1 is believed to be allowable over the cited art and withdrawal of the rejection of claim 1 is respectfully requested.

Claim 12: Independent claim 12 has been amended to include the limitation wherein a first chip rate of said at least two chip rates is equal to a fraction n/p of a second chip rate of said at least two chip rates, wherein said second chip rate comprises a standard chip rate and for the reasons discussed above claim 12 is believed to be allowable over the cited art. Accordingly, withdrawal of the rejection of claim 12 is respectfully requested.

Claim 22: Independent claim 22 has been amended to better clarify the invention by including the fractional limitation discussed above with reference to claim 1 and is believed to be in allowable format. Claim 22 has also been amended to include a further limitation directed to segmenting the data stream into one or more frames having a desired number of slots, the desired number of slots being variable in accordance with the selected chip rate. It is respectfully submitted that none of the cited prior art, alone or in combination, teaches segmenting the data stream into one or more slotted frames where the number of slots is variable with the chip rate.

While the Examiner acknowledged that in paragraph 5 of the Office Action that neither Struhsaker nor Kim et al. discloses segmenting an incoming data stream into one or more

Application No. : 10/044,386
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AMENDMENT AND RESPONSE TO OFFICE ACTION

frames having one or more slots, the Examiner cited Zeira et al. as disclosing a CDMA system in which the spectrum is dividing into repeating frames having a plurality of time slots, fifteen. But it is respectfully submitted that Zeira et al. does not disclose varying the number of slots in accordance with the chip rate. Accordingly, withdrawal of the rejection of claim 22 is respectfully requested.

Claim 30: Independent claim 30 has been amended to include a fractional limitation as discussed above and is believed to be in allowable format. Withdrawal of the rejection of 30 is respectfully requested.

Claim 40: Independent claim 40 has been amended to include a fractional limitation as discussed above and is believed to be in allowable format. Withdrawal of the rejection of 40 is respectfully requested.

Additional Claim Amendments

Claim 3: Claim 3 has been amended to independent format to include a limitation directed to segmenting the data stream into frames having a desired number of time slots in accordance with the selected chip rate as discussed above. Claim 3 is believed to be allowable and withdrawal of the rejection of claim 3 is respectfully requested.

Claims 4 and 5: Dependent claims 4 and 5 have been amended to depend from newly amended claim 1.

Claims 31 and 42: Dependent claims 31 and 42 have been amended to include a limitation directed to segmenting the data stream into frames having a desired number of time slots in accordance with the selected chip rate as discussed above. Claims 31 and 42 are believed to be allowable and withdrawal of the rejection of claims 31 and 42 is respectfully requested.

Claim 32: In Paragraph 1 of the Office Action the Examiner objected to claim 32 stating that "32" should be changed to -31-. Claim 32 has been amended thereby obviating this objection. Withdrawal of the objection to claim 32 is respectfully requested.

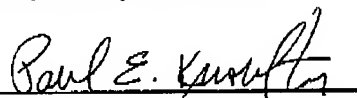
Application No. : 10/044,386
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Claims 11, 13, 14, 17, 21, 25, 29, 32, 39 and 43: Claims 11, 13, 14, 17, 21, 25, 29, 32, 39 and 43 have been amended to provide for accurate antecedent basis references due to the amendment of the base claims on which they depend.

Conclusion

It is believed that this Application is in condition for allowance and Applicant respectfully requests that a timely Notice of Allowance be issued. No new matter has been added. A check in the amount of \$200 is attached for fees believed due by the addition of one independent claim (claim 3 has been rewritten in independent format). If any additional fees are due, please charge deposit account 50-3447. If the Examiner believes that there are any issues which can be resolved via a telephone conference or by an Examiner's amendment, a telephone call to the undersigned at (678) 325-6603 is respectfully requested.

Respectfully submitted,



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